

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present amendment and in light of the following discussion, is respectfully requested.

Claims 1-6 are pending. In the present amendment, Claims 1-3 are currently amended and new Claims 4-6 are added. Support for the present amendment can be found in the original specification, for example, at page 15, line 19 to page 25, line 18, at page 29, line 21 to page 30, line 6, and in Figures 2-8 and 11. Thus, it is respectfully submitted that no new matter is added.

In the outstanding Office Action, Claims 1-3 were rejected under 35 U.S.C. § 102(b) as anticipated by Ogasawara et al. (Japanese Publication No. 2003-144990, hereinafter “Ogasawara”); Claim 1 was rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Baba et al. (Japanese Publication No. 06-262564, hereinafter “Baba”); Claim 2 was rejected under 35 U.S.C. § 103(a) as unpatentable over Baba in view of Naoki et al. (*Teachingless Spray-Painting of Sculptured Surface by an Industrial Robot*, hereinafter “Naoki”); Claims 1 and 3 were rejected under 35 U.S.C. § 103(a) as unpatentable over Baba in view of Kikuchi et al. (U.S. Patent No. 4,714,044, hereinafter “Kikuchi”) or Kikuchi in view of Baba; and Claims 1-3 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as unpatentable over Claims 1, 2, and 5 of U.S. Application No. 10/581,297.

With regard to the provisional non-statutory obviousness-type double patenting rejection, in accordance with MPEP 804(I)(B), Applicants wish to prosecute the present application until such time as the provisional double patenting rejection is believed to be the only remaining rejection in this application and to address the provisional double patenting rejection on the merits at that time.

Claim 1 recites, in part, a coating method for coating a surface of an object. The method recited in Claim 1 comprises “sequentially shifting positions of a first set of turning paths for reciprocation of at least one sprayer unit in one of two directions of said reciprocation and coating a specific area of said divided coating areas, while forming a coating trajectory of said turning paths like a series of steps such that each successive one of the turnings paths of the at least one sprayer unit along one edge of the specific coating area extends further in a first direction than each previous one of the turning paths along the one edge of the specific coating area.” The method also comprises “sequentially shifting positions of a second set of turning paths for reciprocation of said at least one sprayer unit in said one direction to avoid overlapping with said first set of turning paths in said specific coating area and coating a different coating area which is adjacent to said specific coating area while forming a coating trajectory of said second set of turning paths like a series of steps such that each successive one of the second set of turnings paths along one edge of the different coating area, adjacent to the one edge of the specific coating area, extends less in a second direction opposite to the first direction than each previous one of the second set of turning paths along the one edge of the different coating area.”

Accordingly, a method recited in Claim 1 sequentially shifts the positions of the turning paths for the at least one sprayer unit which are positioned along the boundary between the coating areas, as can be seen in the exemplary embodiment shown in Figures 2-8. Accordingly, the turning paths can be spread and located, the occurrence of color shading can be prevented, and the finished coating quality of the entire coating surface can be increased. It is respectfully submitted that the cited references do not disclose or suggest every feature recited in amended Claim 1.

Ogasawara describes a method for coating a surface of a vehicle body by dividing the surface of the object to form a plurality of areas for coating, where each area is coated by at

least one coater that reciprocates.¹ The Office Action takes the position in Section 2 on page 2 that Figure 2 of Ogasawara describes sequentially shifting a position of turning paths in either of the two reciprocating directions where such turning paths are like a series of steps to form a coating along the trajectory-coating path.

However, it is respectfully submitted that Ogasawara does not disclose or suggest “sequentially shifting positions of a second set of turning paths for reciprocation of said at least one sprayer unit in said one direction to avoid overlapping with said first set of turning paths in said specific coating area and coating a different coating area which is adjacent to said specific coating area while forming a coating trajectory of said second set of turning paths like a series of steps such that each successive one of the second set of turnings paths along one edge of the different coating area, adjacent to the one edge of the specific coating area, extends less in a second direction opposite to the first direction than each previous one of the second set of turning paths along the one edge of the different coating area,” as recited in amended Claim 1.

Instead, as can be seen in Figure 2, the trunk lid 3 of Ogasawara shows a left part 3L and a right part 3R having alternatively shifting positions of the turning paths for reciprocation to one side and the other side, and thus is different from the claimed invention which sequentially shifts the position for supplanting of turning paths to one side of the reciprocating directions. Thus, the trunk lid 3 in Figure 2 of Ogasawara does not show a series of steps such that each successive one of the second set of turning paths of either sprayer unit along one edge of either coating area adjacent to another edge of a coating area *extends less* in a second direction opposite the first direction in each previous one of the turning paths along one edge of the different coating area. On the contrary, the turning paths

¹ See Ogasawara, at paragraphs [0018]-[0024] and in Figures 1-9 of the English language machine translation of Ogasawara.

on the border between the left part 3L and the right part 3R of the trunk lid extend a same difference each time. Further, none of the other portions of the vehicle in Figure 2 of Ogasawara share a common border having turning paths therebetween.

Accordingly, it is respectfully submitted that Ogasawara does not disclose or suggest every feature recited in amended Claim 1. Thus, it is respectfully requested that the rejection of Claim 1, and all claims dependent thereon as anticipated by Ogasawara be withdrawn.

Baba describes painting robots 13 and 14 that can paint independently and on both sides of the body 1 of a car.² Baba further describes that after the first painting robot 13 is given instructions regarding the coordinates to paint, the second painting robot 14 is given coordinates that are a mirror conversion of the position of the first robot's painting arm to shorten the time for one robot to teach the next robot where to paint.³ Thus, the painted areas done by the two robots of Baba will have mirror symmetry with respect to one another.

However, it is respectfully submitted that Baba does not disclose or suggest "sequentially shifting positions of a second set of turning paths for reciprocation of said at least one sprayer unit in said one direction to avoid overlapping with said first set of turning paths in said specific coating area and coating a different coating area which is adjacent to said specific coating area while forming a coating trajectory of said second set of turning paths like a series of steps such that each successive one of the second set of turnings paths along one edge of the different coating area, adjacent to the one edge of the specific coating area, extends less in a second direction opposite to the first direction than each previous one of the second set of turning paths along the one edge of the different coating area," as recited in amended Claim 1.

² See Baba, at paragraph [0018] and in Figure 1 of the English language machine translation of Baba.

³ See Baba, at paragraphs [0027] and [0028].

Instead, as discussed above, the coating trajectories of the two robots described in Baba will be mirror images of one another, and thus have a symmetric shape across a center line. Thus, even if one of the coating areas has turning paths like a series of steps, the other coating area would have a mirror image of these series of steps, and thus would not have a series of steps that is *adjacent to* the first series of steps. Accordingly, two coating areas formed by the method described in Baba could only be adjacent along one edge if they both had turning paths that did not form the claimed series of steps.

Thus, with regard to Baba, the order of painting from one robot is used to teach a mirror image to the opposing robot to shorten the time for the one robot to teach the opposing robot where to paint.⁴ Therefore, the coating trajectories of one robot and the opposing robot will be in a symmetric shape against the center line.

On the contrary, with regard to the invention recited in Claim 1, the at least one sprayer unit sprays while shifting positions of turning paths, located at a boundary between adjacent coating areas to one side of the reciprocating directions. Thus, coating trajectories of the at least one sprayer unit would *not* be in a symmetric shape against the center line.⁵

Assuming that one of the robots described in Baba were to form turning paths having the series of steps recited in the third paragraph of Claim 1, then the second robot would form a mirror image to the series of steps. Thus, there would be a non-painted blank area in the coating object in between the two series of steps. Accordingly, the mirror image painting described in Baba is not the claimed sequentially shifting positions of turning paths in the at least one sprayer unit.

⁴ See Baba, at paragraphs [0013], [0014], and [0021] and in Figures 2 and 3.

⁵ See divisional specification, for example, in Figure 2.

Therefore, it is respectfully submitted that Baba does not disclose or suggest every feature recited in amended Claim 1. Thus, it is respectfully requested that the rejection of Claim 1 as anticipated by or, in the alternative, as unpatentable over Baba be withdrawn.

Turning now to the rejection of Claim 2 as unpatentable over Baba in view of Naoki, it is noted that Claim 2 is dependent on Claim 1 and thus is believed to be patentable for at least the reasons discussed above with respect to Claim 1. Further, it is respectfully submitted that Naoki does not cure the above-noted deficiencies of Baba. Thus, it is respectfully requested that the rejection of Claim 2 as unpatentable over Baba in view of Naoki be withdrawn.

Regarding the rejection of Claims 1 and 3 as unpatentable over Baba in view of Kikuchi or Kikuchi in view of Baba, the above discussion of Baba is incorporated herein.

The Office Action in Section 5 on page 5 acknowledges that Baba does not disclose or suggest providing a conveying means in a predetermined direction, and relies on Kikuchi to cure this deficiency of Baba. Further, the Office Action Section 5 on pages 5 and 6 takes the position that Kikuchi describes painting a side surface of a vehicle in three-axis movement and relies on the coating method of Baba to teach the claimed trajectory paths of the three-axis painting robot of Kikuchi.

However, it is respectfully submitted that the cited combinations of Baba in view of Kikuchi and Kikuchi in view of Baba do not disclose or suggest “sequentially shifting positions of a second set of turning paths for reciprocation of said at least one sprayer unit in said one direction to avoid overlapping with said first set of turning paths in said specific coating area and coating a different coating area which is adjacent to said specific coating area while forming a coating trajectory of said second set of turning paths like a series of steps such that each successive one of the second set of turnings paths along one edge of the different coating area, adjacent to the one edge of the specific coating area, extends less in a

second direction opposite to the first direction than each previous one of the second set of turning paths along the one edge of the different coating area,” as recited in amended Claim 1.

Instead, in view of the above discussion of Baba, the cited combination of Baba in view of Kikuchi or Kikuchi in view of Baba would only paint adjacent areas that are mirror images of one another. Accordingly, even if Baba in view of Kikuchi or Kikuchi in view of Baba described painting an area having one of the two claimed series of steps, then the other coating area would be a mirror image of the first coating area, and thus *would not* be the second series of steps for the reasons discussed above with respect to Baba.

Accordingly, it is respectfully submitted that the cited combinations of Kikuchi in view of Baba and Baba in view of Kikuchi do not disclose or suggest every feature recited in amended Claim 1. Thus, it is respectfully requested that the rejection of Claim 1 as unpatentable over Kikuchi in view of Baba or Baba in view of Kikuchi be withdrawn.

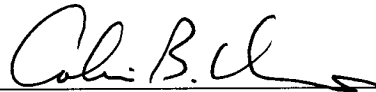
New Claims 4-6 are added by the present amendment. Support for new Claims 4-6 can be found in the original specification, for example, at page 15, line 19 to page 25, line 18, at page 29, line 21 to page 30, line 6, and in Figures 2-8 and 11. Thus, it is respectfully submitted that no new matter is added.

New Claims 4-6 depend on Claim 1, and thus are believed to be patentable for at least the reasons discussed above with respect to Claim 1. Further, new Claims 4-6 further define the steps recited in Claim 1, and thus further patentably define over the cited references.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. A Notice of Allowance is earnestly solicited.

Respectfully submitted,

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